REMARKS

In the Office Action mailed May 18, 2007, the Examiner took the following action: (1) rejected claims 2-5, 7-9, 13-14, 19, and 21-24 under 35 U.S.C. §112, second paragraph, as being indefinite; and (2) rejected claims 1, 10-12, 20, and 25 under 35 U.S.C. §102(b) as being anticipated by Kim "An Efficient Response-Based Modal Analysis for Dynamic Systems with Multiple Inputs" (AIAA-2001-1380). The Examiner acknowledged, however, that claims 15-19 are allowable. Applicant thanks the Examiner for acknowledging the allowable subject matter, and respectfully requests reconsideration of the application in view of the foregoing amendments and the following remarks.

I. Amendments to the Specification

Applicant has amended various paragraphs of the Specification to correct informalities noted by the Applicant. No new matter has been added.

II. Rejections under 35 USC §112, second paragraph

Claims 2-5, 7-9, 13-14, and 21-24 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite, and claim 19 was indicated as suffering from indefiniteness similar to claim 13. Applicant has amended these claims to correct the informalities noted by the Examiner, and to remove the indefiniteness from these claims. Specifically, the claims have been amended to explicitly show the connection between the limitations recited in the dependent claims with the corresponding limitations of the independent claim and other dependent claims. No new matter has been added. Therefore, Applicant respectfully requests reconsideration and withdrawal of these rejections.

III. Rejections under 35 USC §102(b)

Claims 1, 10-12, 20, and 25 stand rejected under 35 U.S.C. §102(b) as being anticipated by Kim "An Efficient Response-Based Modal Analysis for Dynamic Systems with Multiple Inputs."

Claims 1 and 10-12

Claim 1 recites:

> 1. A method of model reduction and system identification of a dynamic system with multiple inputs, comprising:
> *generating a plurality of statistically independent random numbers for use as input signals*; and
> performing a singular-value-decomposition directly *on a system response of the dynamic system due to a simultaneous excitation of the plurality of input signals*. (emphasis added).

Kim "An Efficient Response-Based Modal Analysis for Dynamic Systems with Multiple Inputs" (AIAA-2001-1380)

AIAA-2001-1380 teaches methods for response-based modal analysis of dynamic systems with multiple inputs. According to AIAA-2001-1380, a mode calculation of a system is performed only once using a Single-Composite-Input method. (Page 2, col. 1, para. 3, lines 9-11). As an example, an unsteady vortex lattice is modeled using a Karhunen-Loeve method in both the time and frequency domains, and using the SCI method to provide a reduced-order model. (Page 2, col. 1, para. 4, lines 1-9). Significantly, AIAA-2001-1380 teaches that "the idea in using the single input in Eq. (25) or (26) is that based on the linear superposition principle, *by subjecting all of the driving inputs concurrently to be in sinusoidal forms with distinct forcing*

frequencies, all of [the] important eigenmodes of the dynamic system that participate in the individual responses due to each input, will be captured in the single response." (Page 4, col. 1, para. 7, line 1, through page 4, col. 2, para. 1, line 5). (emphasis added).

Applicant respectfully submits that AIAA-2001-1380 fails to disclose, teach, or fairly suggest the method recited in claim 1. Specifically, AIAA-2001-1380 fails to teach or fairly suggest a method that includes *generating a plurality of statistically independent random numbers for use as input signals*; and performing a singular-value-decomposition directly *on a system response of the dynamic system due to a simultaneous excitation of the plurality of input signals.* (emphasis added). As noted above, AIAA-2001-1380 teaches that the all of the driving inputs are in sinusoidal forms with distinct forcing frequencies. There is no teaching or suggestion in AIAA-2001-1380 of *generating a plurality of statistically independent random numbers for use as input signals*, or of performing a singular-value-decomposition directly *on a system response of the dynamic system due to a simultaneous excitation of the plurality of input signals*, as recited in claim 1.

For the foregoing reasons, claim 1 is allowable over AIAA-2001-1380. Claims 10-12 depend from claim 1 and are allowable at least due to their dependencies on claim 1, and also due to additional limitations recited in those claims.

Claims 20 and 25

Similarly, claim 20 recites:

> 20. A method of simulating a fluid flow, comprising:
> *generating a plurality of statistically independent random numbers for use as input signals*; and
> performing a singular-value-decomposition directly *on a fluid response due to a simultaneous excitation of the plurality of input signals.* (emphasis added).

As described above, Applicant respectfully submits that AIAA-2001-1380 fails to disclose, teach, or fairly suggest the method recited in claim 20. Specifically, AIAA-2001-1380 fails to teach or fairly suggest a method that includes *generating a plurality of statistically independent random numbers for use as input signals*; and performing a singular-value-decomposition directly *on a fluid response due to a simultaneous excitation of the plurality of input signals*. (emphasis added). As noted above, AIAA-2001-1380 teaches that the all of the driving inputs are in sinusoidal forms with distinct forcing frequencies. There is no teaching or suggestion in AIAA-2001-1380 of *generating a plurality of statistically independent random numbers for use as input signals*, or of performing a singular-value-decomposition directly *on a fluid response due to a simultaneous excitation of the plurality of input signals*, as recited in claim 20.

For the foregoing reasons, claim 20 is allowable over AIAA-2001-1380. Claim 25 depends from claim 20 and are allowable at least due to its dependency on claim 20, and also due to additional limitations recited in this claim.

CONCLUSION

For the foregoing reasons, Applicant respectfully submits that claims 1-25 are now in condition for allowance. If there are any remaining matters that may be handled by telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

Respectfully Submitted,

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By: Dale C. Barr

Dale C. Barr
Lee & Hayes, PLLC
Reg. No. 40498
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